

CLAIMS

Having thus described the invention, what is CLAIMED is:

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1. A miter box adapted for use with a saw for making cuts at each of a multiplicity of angles, comprising:

10 a base comprised of a table having a generally planar upper surface, structure defining an effectively circular passage extending on an axis normal to said upper surface, and means for supporting said table in an elevated position with an underlying space defined therebeneath, said table having a forward edge portion spaced from said passage; and

15 a generally U-shaped saw guide assembled with said base, said saw guide being comprised of a beam having forward and rearward ends, an upstanding pivot post adjacent said rearward end, and an upstanding guide piece adjacent said forward end, at least a portion of the length of said pivot post being of circular cross section and being pivotably engaged in said passage of said base, and said beam extending radially in said underlying space and being of such length as to dispose said guide piece forwardly adjacent said forward edge portion of said table, each of said pivot post and said guide piece having a slot extending longitudinally therethrough for cooperatively receiving the blade of a saw for movement, over said table  
20 upper surface, reciprocally therethrough and longitudinally therealong, said saw guide being pivotable relative to said base so as to enable a saw so mounted to be aligned on each of a multiplicity of radii extending from said passage axis.

25 2. The miter box of Claim 1 wherein said forward edge portion of said table is arcuate and extends concentrically with said circular passage.

3. The miter box of Claim 1 wherein said table has indicia thereon providing visual references for selective angular positioning of said saw guide relative to said base.

30 4. The miter box of Claim 1 wherein said base and said saw guide are unitary components, and are readily disengageable from one another.

5 5. The miter box of fixed Claim 4 wherein said miter box additionally includes means for securing said saw guide in selected angular positions relative to said base, said means for securing comprising a securing member mounted on said saw guide and movable between positions of engagement with and disengagement from said table.

10 6. The miter box of Claim 5 wherein said securing member is of elongate form and is mounted for movement on a longitudinal axis between said engagement and disengagement positions, said securing member having a tip on one end disposed to engage fixedly said forward edge portion of said table in said engagement position, and being oriented with a slight incline of said longitudinal axis toward said table.

15 7. The miter box of Claim 6 wherein a plurality of discrete securing elements are disposed at angularly spaced locations along said forward edge portion of said table, each of said securing elements being engageable with said securing member for securing said saw guide at said spaced locations.

20 8. The miter box of Claim 1 wherein said base additionally includes an upstanding fence member having portions disposed substantially diametrically to opposite sides of said circular passage and cooperatively providing a back supporting surface having elements defining a support plane substantially perpendicular to the plane in which said upper surface of said table lies.

25 9. The miter box of Claim 8 wherein said pivot post is substantially cylindrical and said fence member portions define effectively a cylindrical bore on said normal axis for pivotably receiving and supporting said pivot post and comprise said structure defining said effectively circular passage of said base.

30 10. The miter box of Claim 8 additionally including means for clamping a workpiece against said fence member, said means for clamping comprising: channel-defining means defining at least a first channel recessed into said upper surface of said table and having a proximal end near said fence member and a distal end remote therefrom, said first channel being defined by shaped opposite sidewalls which substantially replicate one another and are

characterized by a multiplicity of substantially identical structural elements spaced regularly along the length of said first channel and projecting toward a center line thereof; a first lug piece dimensioned and configured to seat in said first channel at each of a multiplicity of locations along the length thereof, said first lug piece having opposite ends and opposite lateral surfaces extending therebetween, said lateral surfaces being formed with fixed mating structural features that correspond to said structural elements of said shaped opposite sidewalls for engaging matingly said opposite sidewalls of said first channel when seated therein, thereby to effectively lock said lug piece against displacement along said first channel from each of said multiplicity of locations; and a first clamping piece mounted on said first lug piece for rotation about an axis normal to said plane of said upper surface of said table when said first lug piece is seated in said first channel, said first clamping piece having at least one projecting lobe portion with a bearing surface thereon disposed substantially at said plane of said table upper surface for being brought, by rotation of said first clamping piece, into clamping engagement with a workpiece supported against said back supporting surface of said fence member, when said first lug piece is seated in said first channel at a location proximate to the workpiece.

11. The miter box of Claim 10 wherein each of said structural elements has an apex and is symmetrical about a centerline extending through said apex perpendicular to said center line of said first channel.

12. The miter box of Claim 11 wherein said structural elements of one of said shaped sidewalls defining said first channel are offset, along the length of said first channel, from like structural elements of the other of said shaped sidewalls a distance less than the distance between the apices of adjacent structural elements on said sidewalls, and wherein said mating structural features on said opposite lateral surfaces of said first lug piece have substantially the same relative offset as do said sidewall structural elements, said first lug piece thereby being constructed to seat engagingly in said first channel in both of the end-for-end inverted orientations thereof, such inversion shifting the position of said first lug piece, relative to any position attainable by said first lug piece in its non-inverted orientation, along the length of said first channel.

13. The miter box of Claim 10 wherein said shape of said sidewalls of said first channel is of undulant, sawtooth, or square tooth character.

14. The miter box of Claim 10 wherein said first channel extends along a substantially rectilinear axis.

15. The miter box of Claim 14 wherein said rectilinear axis is generally normal to said plane of said back supporting surface of said fence member.

16. The miter box of Claim 10 wherein said first clamping piece has two opposite end portions, each providing a projecting lobe portion having a said bearing surface so disposed thereon, and wherein said first clamping piece and lug piece have means for coupling them for relative rotation about an axis that is eccentric to a midpoint between said bearing surfaces of said first clamping piece.

17. The miter box of Claim 16 wherein said means for coupling comprises a pin projecting from one of said first pieces and an aperture formed in the other of said first pieces dimensioned to receive said pin, at least one of said pin and said aperture being disposed on said eccentric axis of said first clamping piece.

18. The miter box of Claim 10 wherein said channel-defining means defines a second channel like said first channel, and wherein said miter box additionally includes a second said lug piece and a second said clamping piece, said second channel, second lug piece, and second clamping piece functioning cooperatively with one another in the manner defined in respect of said first channel, first lug piece, and first clamping piece.

19. The miter box of Claim 18 wherein said first and second channels are spaced laterally from one another to opposite sides of said circular passage through said base.

20. The miter box of Claim 1 wherein the portion of said table lying forwardly of said circular passage is substantially semicircular.

21. The miter box of Claim 1 wherein at least said base is fabricated from a synthetic resinous material.

5           22. A miter box adapted for use with a saw for making cuts at each of a multiplicity of angles, comprising:

          a base comprised of a table having a generally planar upper surface, structure defining an effectively circular passage extending on a axis normal to said upper surface, and means for supporting said table in an elevated position with an underlying space defined therebeneath, said table having a forward edge portion spaced from said passage;

10           a generally U-shaped saw guide assembled with said base, said saw guide being comprised of a beam having forward and rearward ends, an upstanding pivot post adjacent said rearward end, and an upstanding guide piece adjacent said forward end, at least a portion of the length of said pivot post being of circular cross section and being pivotably engaged in said passage of said base, and said beam extending radially in said underlying space and being of such length as to dispose said guide piece forwardly adjacent said forward edge portion of said table, each of said pivot post and said guide piece having a slot extending longitudinally therethrough for cooperatively receiving the blade of a saw for movement, over said table upper surface, reciprocally therethrough and longitudinally therealong, said saw guide being

15           pivotal relative to said base so as to enable a saw so mounted to be aligned on each of a multiplicity of radii extending from said passage axis;

          an upstanding fence member having portions disposed substantially diametrically to opposite sides of said circular passage and cooperatively providing a back supporting surface having elements defining a support plane substantially perpendicular to the plane in which said upper surface of said table lies; and

25           means for clamping a workpiece against said fence member, said means for clamping comprising: channel-defining means defining at least a first channel recessed into said upper surface of said table and having a proximal end near said fence member and a distal end remote therefrom, said first channel being defined by shaped opposite sidewalls which

30           substantially replicate one another and are characterized by a multiplicity of substantially identical structural elements spaced regularly along the length of said first channel and projecting toward a center line thereof; a first lug piece dimensioned and configured to seat in said first channel at each of a multiplicity of locations along the length thereof, said first lug

piece having opposite ends and opposite lateral surfaces extending therebetween, said lateral surfaces being formed with fixed mating structural features that correspond to said structural elements of said shaped opposite sidewalls for engaging matingly said opposite sidewalls of said first channel when seated therein, thereby to effectively lock said lug piece against  
5 displacement along said first channel from each of said multiplicity of locations; and a first clamping piece mounted on said first lug piece for rotation about an axis normal to said plane of said upper surface of said table when said first lug piece is seated in said first channel, said first clamping piece having at least one projecting lobe portion with a bearing surface thereon disposed substantially at said plane of said table upper surface for being brought, by rotation  
10 of said first clamping piece, into clamping engagement with a workpiece supported against said back supporting surface of said fence member, when said first lug piece is seated in said first channel proximate to the workpiece.